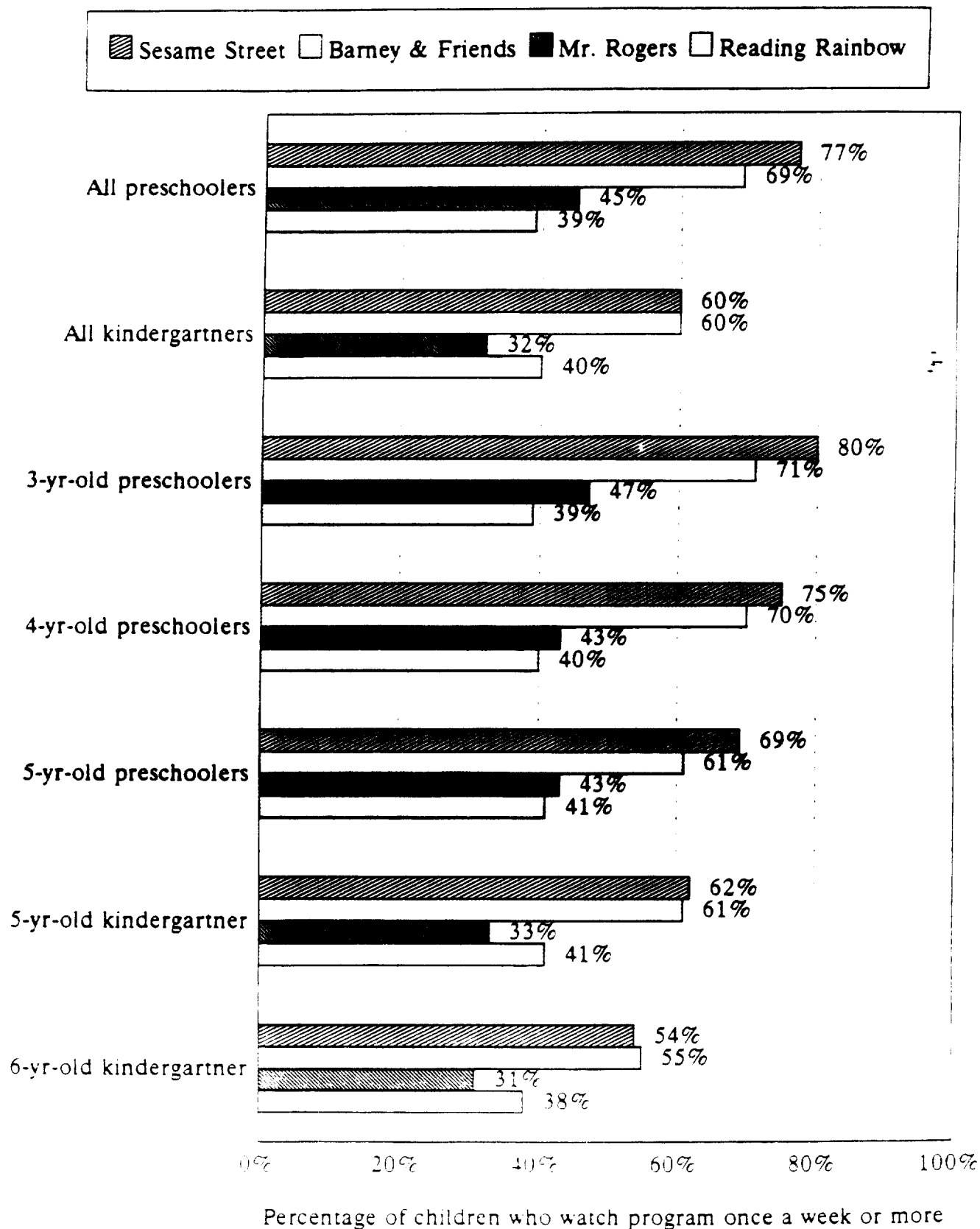


FIGURE 1

**Percentage of Children Who Watch Sesame Street
and Three Other Public Television Children's Programs**

by Age and School Status



reaching most of the children who can be considered "at risk" of school failure, based on the socioeconomic and experiential factors that are typically used to identify such children. (See Figures 2, 3, and 4, and Tables 1 and 2). Nevertheless, there are two subgroups for whom coverage is somewhat less complete. One is young children who are not read to regularly by their parents. The other is children who live outside major metropolitan areas. These and other subsets of young children who show relatively low or high rates of Sesame Street viewing are described in the following pages.

Younger children are more likely to watch Sesame Street regularly. The NHES data show a decline in Sesame Street viewing as preschool children approach school age, and a further drop when they start kindergarten. (Figure 2, Tables 1 and 2). Parents reported that 80 percent of 3-year-olds watched the program regularly, compared to 75 percent of 4-year-old and 69 percent of 5-year-old preschoolers. Viewing of the program is generally less common among children who are attending kindergarten than among those who are not yet going to school. Overall, 60 percent of enrolled kindergarten children watch once a week or more. Among four-year-olds, however, 75 percent of both those who are in kindergarten and those who have not yet started kindergarten watch regularly.

Girls are more likely to be viewers. Sex differences in reported Sesame Street viewing were small, but girls were slightly more likely than boys to be described as current viewers of the program. This held true among preschoolers (79 percent to 75 percent) and kindergartners (63 percent to 57 percent). On the other hand, in the retrospective reports by parents of early elementary pupils, girls and boys were essentially equally likely to be described as having watched the show before beginning school (87 percent and 86 percent, respectively).

Children of highly educated parents stop watching Sesame Street earlier than children of less educated parents. Over most of the range of parent education levels, there is relatively little variation in the reported frequency of Sesame Street viewing by preschoolers and kindergartners. This is one indication that Sesame Street is succeeding in

FIGURE 2A
Preschoolers' Exposure to
Sesame Street

by Age, Gender, Race/Ethnicity, Parent Education and Household Income

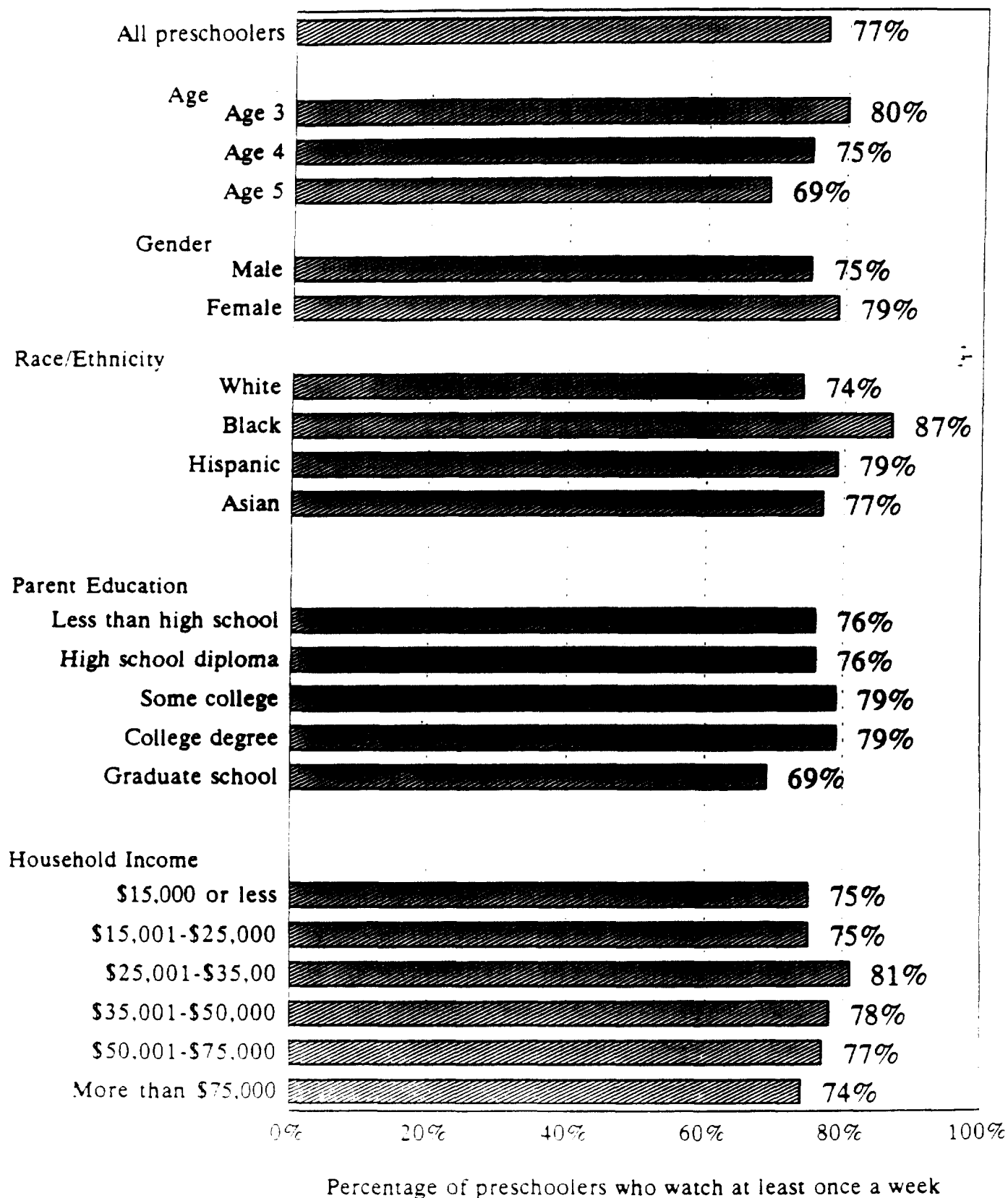
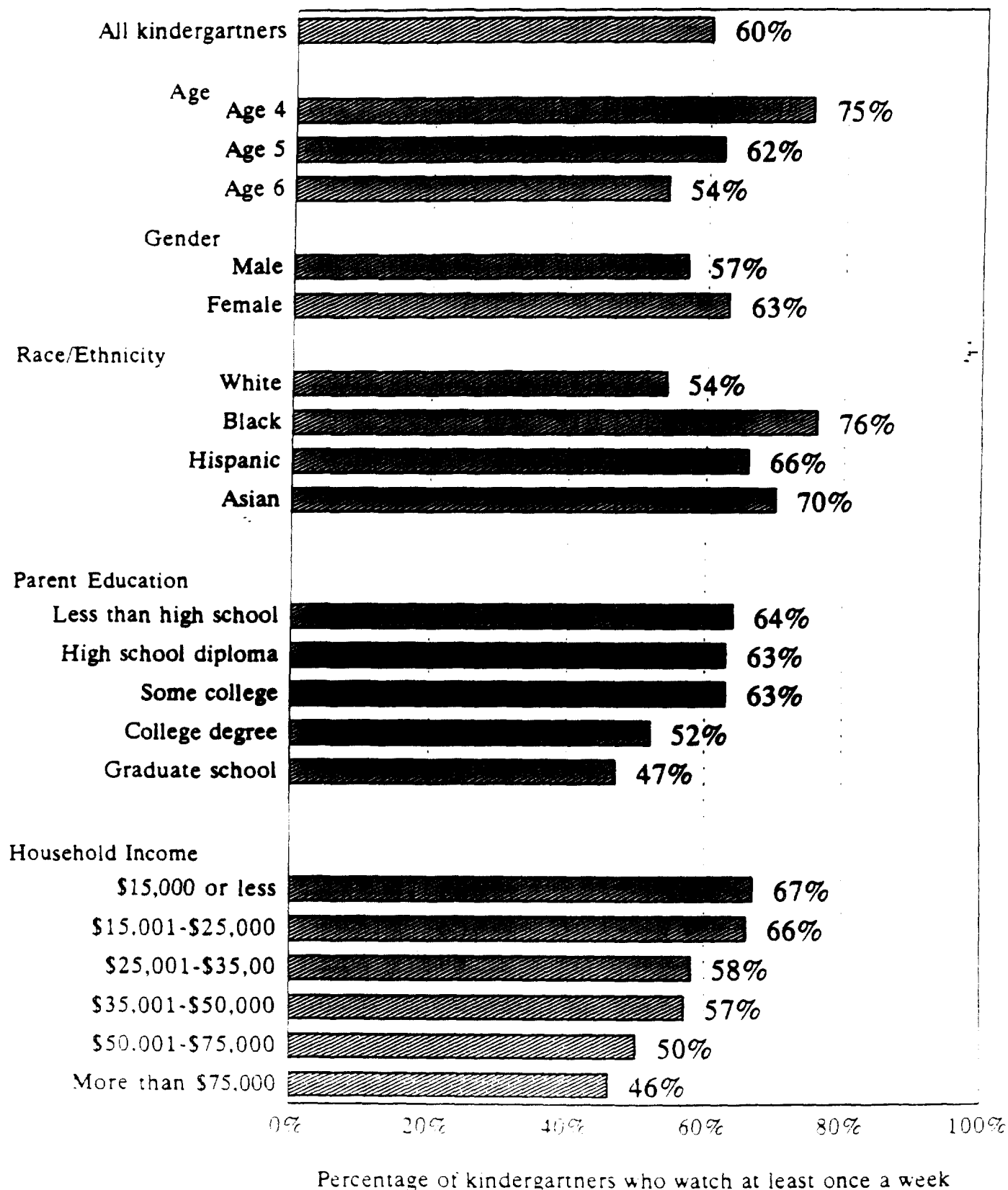


FIGURE 2B
Kindergartners' Current Exposure to
Sesame Street

by Age, Gender, Race/Ethnicity, Parent Education, and Household Income



reaching "at risk" children because a low parent education level is one of the strongest markers of a child's being likely to experience difficulties upon entering school.

Among four-year-old preschoolers, for example, the percentage viewing the program once a week or more varied only from 75 percent among children of high school graduates or college graduates to 78 percent among children whose parents had less than a high school education. However, the proportion of current viewers was considerably smaller among children whose parents were in the highest education category, namely, those who had completed at least one year of graduate school beyond the college degree. Among four-year-old preschoolers, for example, only 66 percent were current viewers of Sesame Street.

It is not as if these children never watched Sesame Street. The reports of parents of elementary school pupils on their children's viewing of the program prior to starting school show that children of parents with graduate school educations were as likely or more likely to have been viewers as elementary pupils with less educated parents. What this implies is that the children of parents with graduate school educations probably stop viewing Sesame Street at younger ages than other children and perhaps go on to watch other programs aimed at more mature audiences, such as Reading Rainbow. Consistent with this interpretation is the NHES finding that preschoolers with graduate-school educated parents have as high rates of viewing Reading Rainbow as preschoolers whose parents had a college degree or some college only, and higher rates than preschoolers whose parents had only a high school education or less.³

The relationships between child's age and parent education level and current viewing of Sesame Street by preschoolers does create complications for comparisons made later in the

³ Also consistent with this explanation is the finding from a number of earlier studies that young children of highly educated parents tend to score higher on cognitive tests and be more precocious in showing signs of emerging literacy, on average, than children of less educated parents. This research implies that the children of graduate-school educated parents would be more likely than other children to have mastered the skills being "taught" on Sesame Street at younger ages, and hence to find the didactic elements of the program less engaging

present study, comparisons between the cognitive skill development of preschool viewers and non-viewers of Sesame Street. These are discussed later in this report.

Despite the finding that majorities of all preschool children watch Sesame Street, the overall decrease in viewing at the upper preschool ages and educational categories suggests that older, more mature, and more educationally advantaged preschoolers may not have the degree of interest in Sesame Street programming that other preschoolers appear to have. On the other hand, the finding that a high proportion of preschoolers from low parent education families watch the show demonstrates the success of Sesame Street's efforts to expose less advantaged children to instruction in critical literacy and numeracy skills. As shown below, the survey found similar high penetration of low income and racial minority households with young children.

Eighty-five percent of early elementary pupils from low income families watched Sesame Street prior to starting school. The NHES found that Sesame Street viewing varied relatively little across family income categories. This is another indication of the program's success at reaching high risk preschoolers and kindergartners, because poverty-level or near-poverty family incomes are strong markers of a child's educational risk. Among preschoolers, 75 percent of those in the lowest income category (\$15,000 or less) watched the show, essentially the same proportion as those in the highest family income category (of those from families with incomes above \$75,000, 74 percent watched), and only slightly below the percentages who watched in the lower-middle and upper-middle income categories (among children from families with incomes in the \$25,000 to \$35,000 range, 81 percent watched, as did 78 percent of those from families in the \$35,000 to \$50,000 range).

Among kindergartners, the percentage watching was highest in the lowest income categories. Two-thirds of those from families with incomes under \$15,000 or from \$15,000 to \$25,000 watched Sesame Street regularly, compared with less than 60 percent of those in the middle income categories, half of those in the \$50,000 to \$75,000 range, and 46 percent of those from families with incomes above \$75,000.

In the retrospective reports by parents of early elementary pupils, 85 percent of children from the lowest two income categories were reported to have watched Sesame Street prior to beginning school. This was below the near-90 percent to 90 percent who had watched among children from higher income families, but not by much.

Ninety percent of black elementary pupils and nearly 90 percent of Hispanic pupils watched Sesame Street prior to starting school. Differences across racial and ethnic groups in the percentage of children reported to be watching or have watched Sesame Street were also modest. The percentage viewing tended to be highest among black children, next highest among Hispanic children or Asian children, and lowest among white children. Among preschoolers, for example, 87 percent of black children were current viewers, as were 79 percent of Hispanic children, 77 percent of Asian children, and 74 percent of non-Hispanic white children. In the retrospective reports by parents of early elementary pupils, 90 percent of black students and 87 percent of Hispanic students were reported to have watched the program prior to starting school, compared with 85 percent of white students who were reported to have done so.

Eighty-three percent of early elementary pupils with Spanish speaking mothers watched Sesame Street prior to starting school. Young children whose mothers are not native English speakers can be at a disadvantage when they reach school because they may not have had as good a chance to acquire oral language and literacy skills in English at home as children whose mothers are native English speakers. Happily, the NHES data indicate that most children of non-native English speaking mothers have ample access to and actively view Sesame Street. (Figure 3, Tables 1 and 2). For example, the percentage of preschool viewers among children whose mother's first language was Spanish -- 77 percent -- is equivalent to the percentage of preschool viewers among children with native

FIGURE 3A

Preschoolers' Exposure to Sesame Street

by Mother's First Language, Family Structure, Preschool Attendance,
and Parental Encouragement of Reading

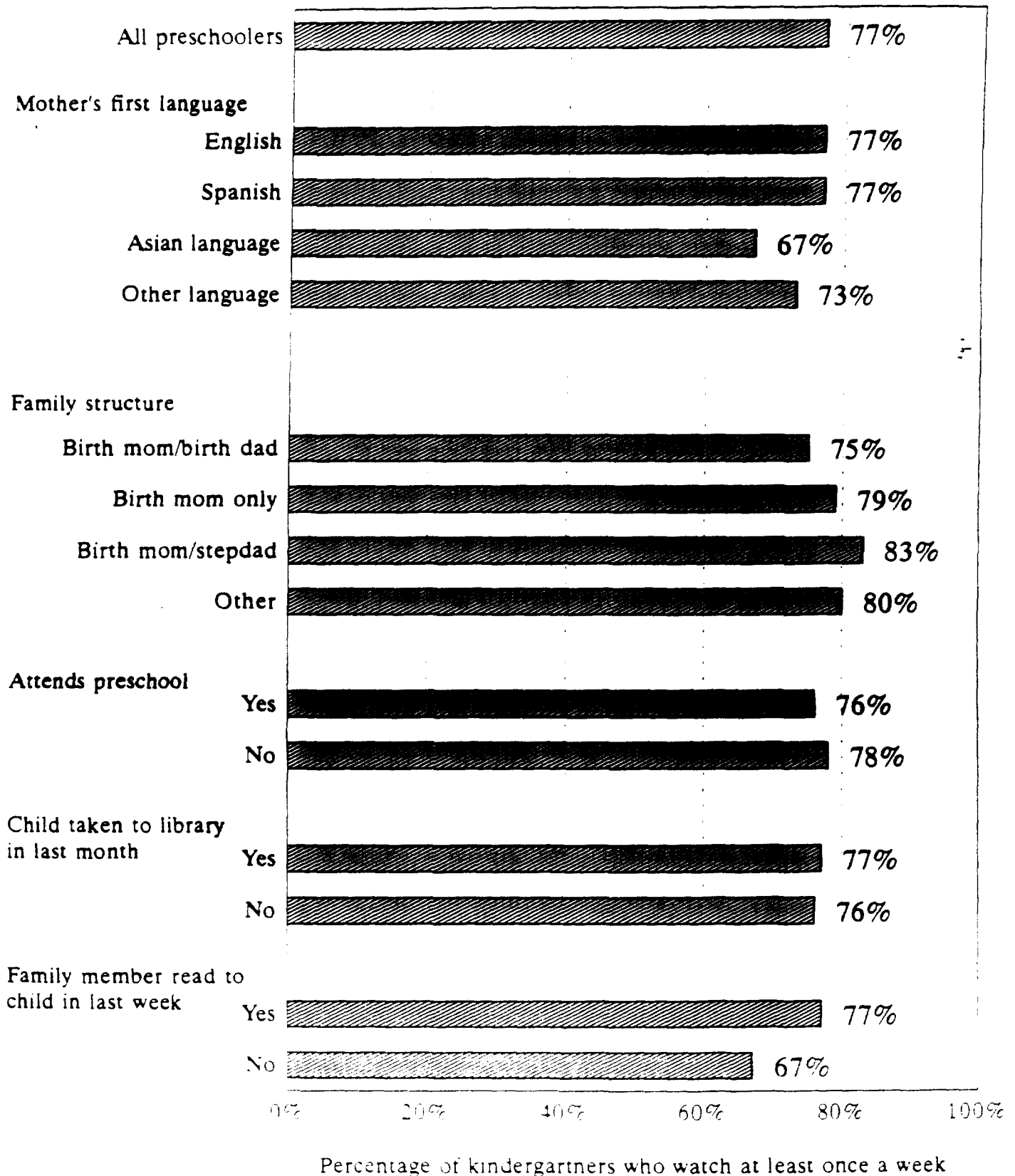
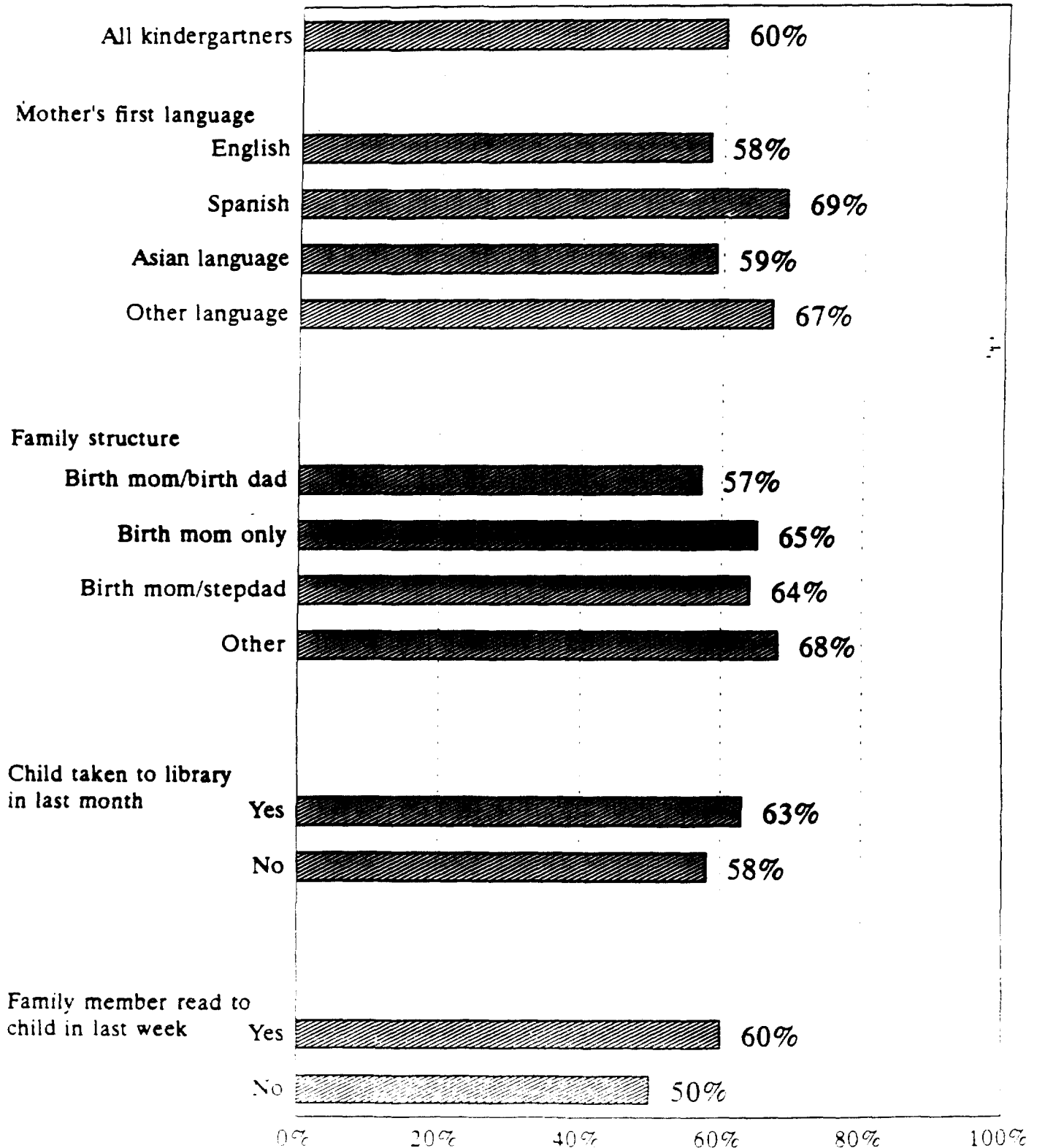


FIGURE 3B

Kindergartners' Current Exposure to Sesame Street

by Mother's First Language, Family Structure, Preschool Attendance, and Parental Encouragement of Reading



Percentage of kindergartners who watch at least once a week

English-speaking mothers. Preschoolers whose mothers first spoke an Asian language were less likely to watch the program regularly: 67 percent did so.⁴

By contrast, among kindergarten children, those whose mothers first spoke an Asian language were about as likely to watch Sesame Street as kindergarten children whose mothers first spoke English: 59 percent and 58 percent, respectively. Kindergartners whose mothers first spoke Spanish were significantly more likely to be watching Sesame Street: 69 percent of these children were current viewers.

In the retrospective reports of parents of early elementary pupils, more than 80 percent of pupils from all the mother's language groups were reported to have watched Sesame Street prior to starting school.

Children from disrupted families are more likely to watch Sesame Street. A number of national surveys involving school-age children have shown that students from single-parent families, stepfamilies, and foster families have higher rates of achievement and school behavior problems than those living with both of their biological parents. The NHES found that young children living in these higher risk family environments are at least as likely and generally more likely to be regular viewers of Sesame Street.

Among preschoolers, for example, 83 percent of those in mother-stepfather families and 79 percent of those in mother-only families watched Sesame Street once a week or more, compared with 75 percent of those in mother-father families. Among kindergartners, 65 percent of those in mother-only families and 64 percent of those in mother-stepfather families

⁴ The NHES School Readiness Interview was administered in Spanish if the parent most knowledgeable about the subject child was not fluent in English. The survey interview was not translated into other non-English languages, however. Thus, the survey's coverage of young children from non-English-speaking and non-Spanish-speaking households was probably not as complete as it was for those from English-speaking or Spanish-speaking households. This, coupled with the relatively small numbers of these children in the national sample, suggests that survey estimates concerning these children should be treated with caution.

were regular viewers, compared with 57 percent of kindergartners living with both their birth mother and birth father. By contrast, there was little variation across family types in the retrospective reports of parents of early elementary pupils. Over 85 percent of pupils from intact families, single-parent families, stepfamilies, and foster families had watched the program for some period prior to the start of their formal schooling.

Children whose parents do not read to them regularly are less likely to watch Sesame Street. Most educators advise parents to read to their young children on a regular basis, preferably every day. Parental reading is believed to nurture early language and literacy skills, as well as fostering a love for books and reading in young children. The absence of parental reading to a preschool child has been found to be a predictor of later academic difficulties.

Nearly all preschoolers in the NHES (94 percent) had parents who reported reading to them at least once in the week prior to data collection. However, the six percent of preschoolers who had not been read to in the past week were also less likely to be regular viewers of Sesame Street. Nevertheless, more than two thirds of these children -- 68 percent -- were reported to watch Sesame Street once a week or more. Although this is significantly less than the viewing percentage among preschoolers who had been read to, which was 77 percent, it was still a substantial majority. Similarly, 50 percent of kindergarten students who had not been read to by their parents in the past week were Sesame Street watchers, compared to 60 percent of the kindergartners who had been read to.

Another indicator of parental stimulation, namely, the child being taken to the library in the last month, also showed some relation to Sesame Street viewing, but only among kindergartners. Fifty-eight percent of kindergartners who had not been taken to the library in the last month were Sesame Street viewers, compared with 63 percent of those who had been to the library.

Children from the poorest communities are most likely to be regular viewers.

The NHES findings contain still another indication of Sesame Street's success in reaching children who are growing up in high risk environments. The viewing data were analyzed by the types of communities in which children lived, with a particular focus on preschoolers living in areas with relatively high concentrations of child poverty (20 percent or more of the children in the ZIP Code area were in families below the poverty level as of the 1990 Census). Eighty-three percent of these children were regular viewers of Sesame Street, a significantly higher percentage than those for preschoolers living in areas with less child poverty. (Figure 4, Tables 1 and 2).

Differences in viewing among children from areas of less than 5 percent poverty, 5-9 percent poverty, or 10-19 percent poverty were not significant, with the viewing percentages ranging from 75 to 78 percent. By contrast, the percentage of kindergartners who were regular Sesame Street viewers increased with increasing poverty concentration, from 54 percent of children living in low poverty areas (less than 5 percent) to 70 percent of children living in high poverty areas (20 percent or more).

Preschoolers living in rural communities are slightly less likely to watch Sesame Street than preschoolers living in large metropolitan areas. The survey found a relatively weak relationship between viewing of Sesame Street and a family's residence inside or outside of large metropolitan areas in the U.S. Preschoolers living outside of one of the Census Bureau's Metropolitan Statistical Areas (MSAs) were somewhat less likely to be regular viewers than preschoolers who lived in the central city or suburbs of an MSA: 72 percent of the former group watched the program regularly, compared with 78 percent of the latter. Although this is a statistically significant difference, it is not a large one. Significant non-metro versus metro differences in viewing were observed in three of the four regions of the U.S., i.e., in all but the South.

In contrast, Sesame Street viewing was not associated with metropolitan residence for kindergartners. Fifty-eight percent of kindergartners living outside MSAs were regular

FIGURE 4A

Preschoolers' Exposure to Sesame Street

by Metropolitan Status, Region, and Poverty within ZIP Code

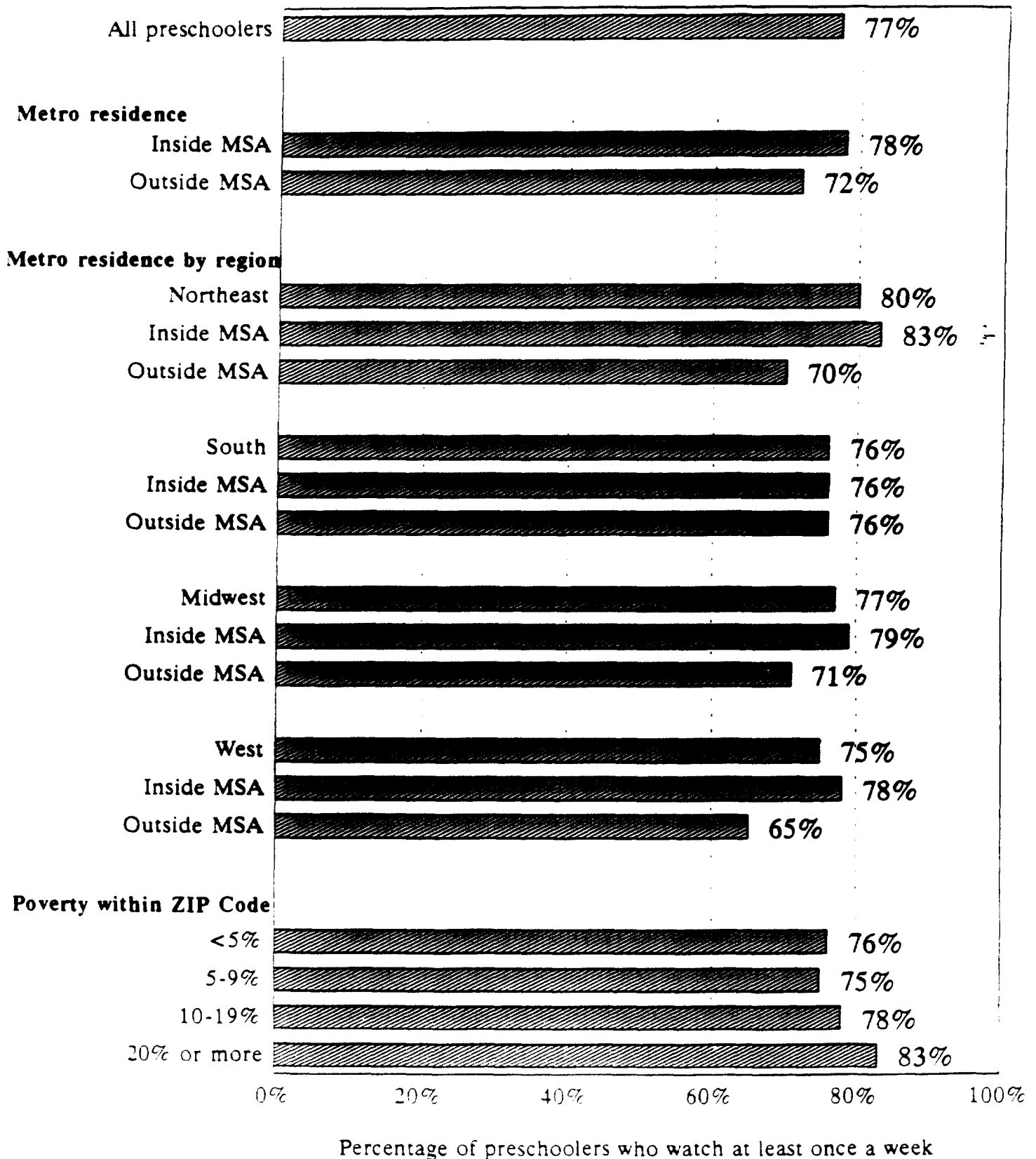
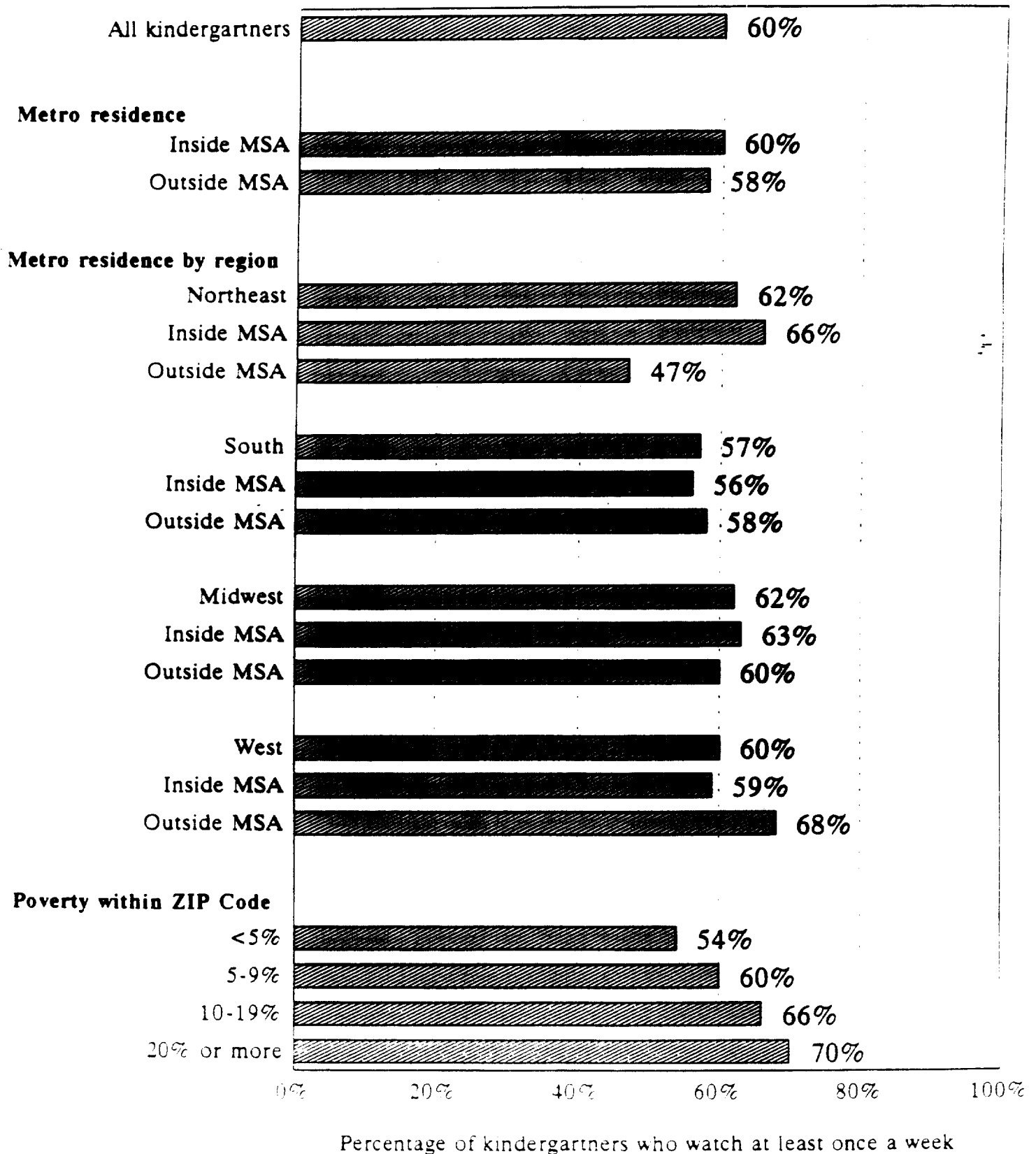


FIGURE 4B

Kindergartners' Current Exposure to Sesame Street

by Metropolitan Status, Region, and Poverty within ZIP Code



viewers of the program, compared with 60 percent of those living inside MSAs. Only in the Northeast region did kindergartners living outside of metropolitan areas show significantly lower rates of viewing than their metropolitan counterparts: 47 percent versus 66 percent.

B. Associations Between Sesame Street Viewing and Children's Emerging Literacy and Academic Performance

Is the widespread viewing of Sesame Street doing any good as far as the intellectual development of preschoolers or the academic performance of school-aged children are concerned? The National Household Education Survey was a cross-sectional survey, rather than a controlled evaluation or a prospective panel study. Thus, we cannot rule out the possibility that observed differences between Sesame Street viewers and non-viewers may be due to factors other than program viewing as such. Nevertheless, it is worth noting that preschoolers from poor families who were current viewers of Sesame Street were more likely to be able to count to twenty, identify the primary colors by name, and show other signs of emerging literacy and numeracy than their counterparts who were not current viewers of the program. The developmental differences between viewers and non-viewers remained significant when other relevant child and family characteristics were controlled by means of regression analysis.

Among first and second graders, those who watched Sesame Street prior to beginning school were more likely to be reading storybooks on their own and less likely to be receiving special help in school for reading problems. These differences held up after other child and family characteristics were controlled. Sesame Street viewers did not differ reliably from non-viewers in the frequency of repeating a grade, receiving negative feedback from the teacher, or falling in the lower half of the class, although most of the trends were in the direction that favored viewers.

Preschool Sesame Street viewers from low-income families are more likely to show signs of emerging literacy. Four-year-old preschoolers who watched Sesame Street

were compared with their age-mates who did not watch the program on various signs of emerging literacy and numeracy.⁵ These included telling connected stories when pretending to read, identifying the primary colors by name, recognizing most letters of the alphabet, counting to 20 or more, and writing and drawing rather than scribbling. When comparisons between viewers and non-viewers were made using all four-year-olds who were not yet in kindergarten, those who watched were more likely to recognize letters, count to twenty, and write and draw rather than scribble. However, viewers were no more likely than non-viewers to identify colors or tell connected stories when pretending to read. (Table 4).

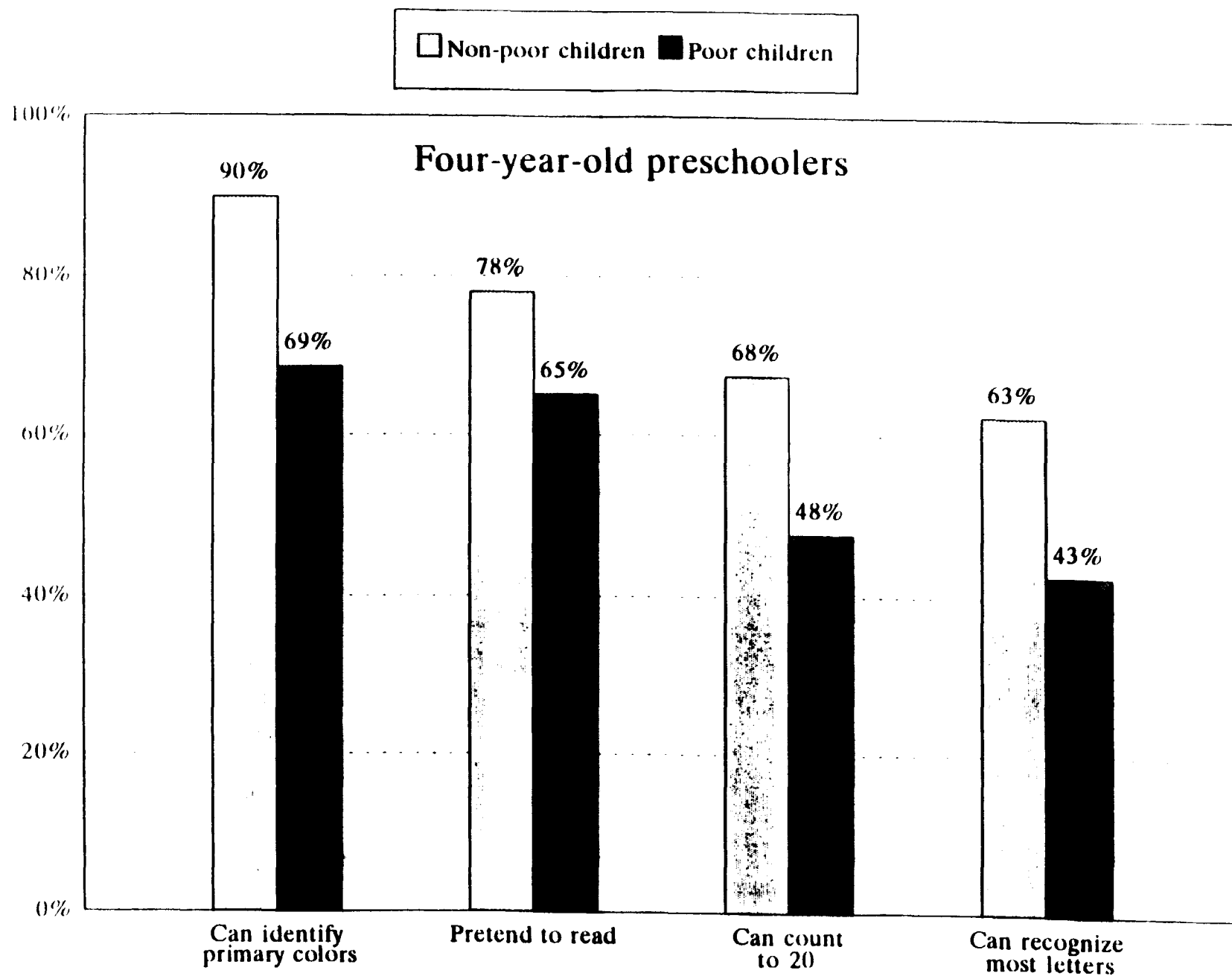
When the four-year-olds were divided into those whose families had incomes below the official poverty line and those whose families were not in poverty, some interesting differences between the two groups emerged. First of all, and not surprisingly, the children from low-income families were notably less likely than those from more affluent families to have displayed the signs of emerging literacy. For example, 69 percent of the poor children could identify the primary colors, whereas 90 percent of the non-poor four-year-olds could do so. Forty-three percent of the poor children, compared with 63 percent of the non-poor, could recognize most letters; and 48 percent of the poor children, versus 68 percent of the non-poor, could count to 20 or higher. (Figure 5, Table 4).

Watching Sesame Street was more strongly associated with most of the signs of emerging literacy among the four-year-olds from low-income families than among the more "advanced" children from higher income families. (Figure 6, Table 4). For example, 51

⁵ As noted earlier, one problem with simply comparing current Sesame Street viewers with non-viewers is that children of highly educated parents are likely to stop watching the program at earlier ages and go on to more advanced programs such as Reading Rainbow. Yet these same children are also quite likely to show early signs of emerging literacy and numeracy. Unfortunately, the questionnaire for preschoolers did not ascertain whether the children were ever viewers of Sesame Street. To try to correct for this limitation in the survey data, children who currently watched Sesame Street or Reading Rainbow were counted as viewers, whereas those who watched neither were considered non-viewers. The analysis was also run with actual current Sesame Street viewers only. The differences in results are described below.

FIGURE 5

Among four-year-old preschoolers, those from non-poor families show more signs of emerging literacy and numeracy than those from poor families.



percent of the poor children who watched the program could count to 20 or more, compared with 36 percent of the poor children who did not watch. Among non-poor four-year-olds, 68 percent of those who watched and 66 percent of those who did not watch Sesame Street could count to 20. Similarly, larger differences were observed among poor children with regard to telling connected stories when pretending to read; identifying primary colors by name; and writing and drawing rather than scribbling. Only with regard to the skill of recognizing most letters was the difference between viewers and non-viewers greater for the non-poor than for the poor children.⁶

Although the poor children who watched Sesame Street showed more signs of emerging literacy than poor children who did not watch, they were still considerably less likely to show these signs than were than children from non-poor families. For example, 71 percent of poor four-year-olds who watched Sesame Street could identify the primary colors by name, whereas 90 percent of all four-year-olds from non-poor families could do so. Likewise, 68 percent of poor children who watched Sesame Street told connected stories when pretending to read, whereas 78 percent of those from non-poor families did so. Thus, the skills that children may learn from Sesame Street do not completely make up for the educational advantages of children who grow up in more affluent families.

Sesame Street viewing is also related to emerging literacy in three-year-olds. The relationship of Sesame Street viewing to emerging literacy was also examined in three-year-old preschoolers, using less stringent criteria for some of the developmental accomplishments. Inasmuch as only 27 percent of all three-year-olds could identify most or all letters of the alphabet, the cutoff for this skill was reduced to recognizing "some" letters. Seventy-eight percent of the 3-year-olds were reported to be able to do this. Also, only 37

⁶ A similar pattern of results was found when only actual current viewers of Sesame Street were contrasted with non-viewers (i.e., when children who watched Reading Rainbow but no longer watched Sesame Street were counted as non-viewers). However, the relationships between viewing and emerging literacy were generally weaker. See Table 5.

FIGURE 6A

Among four-year-olds from poverty-level families, those who watch Sesame Street (or Reading Rainbow) show more signs of emerging literacy and numeracy than those who do not watch.

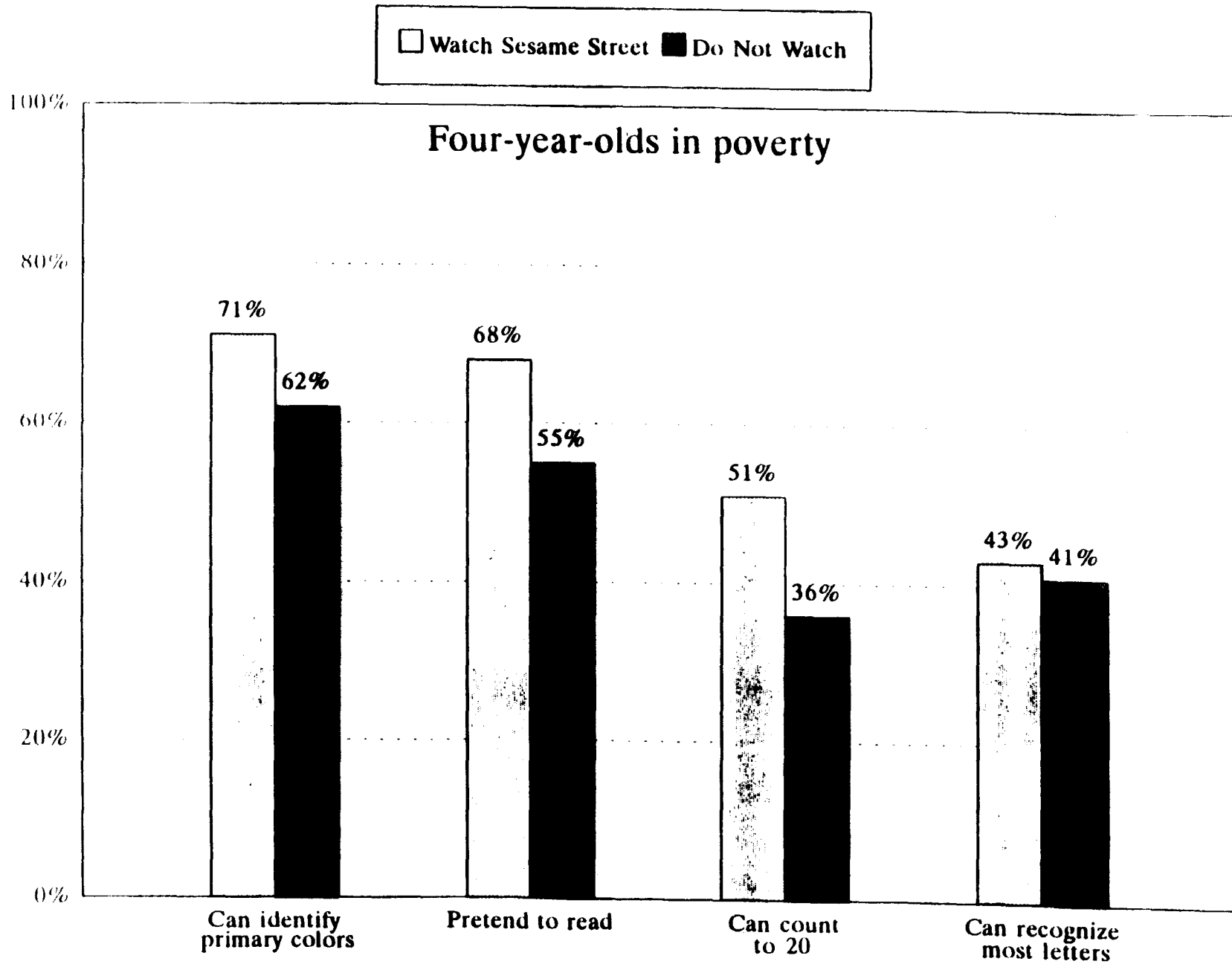
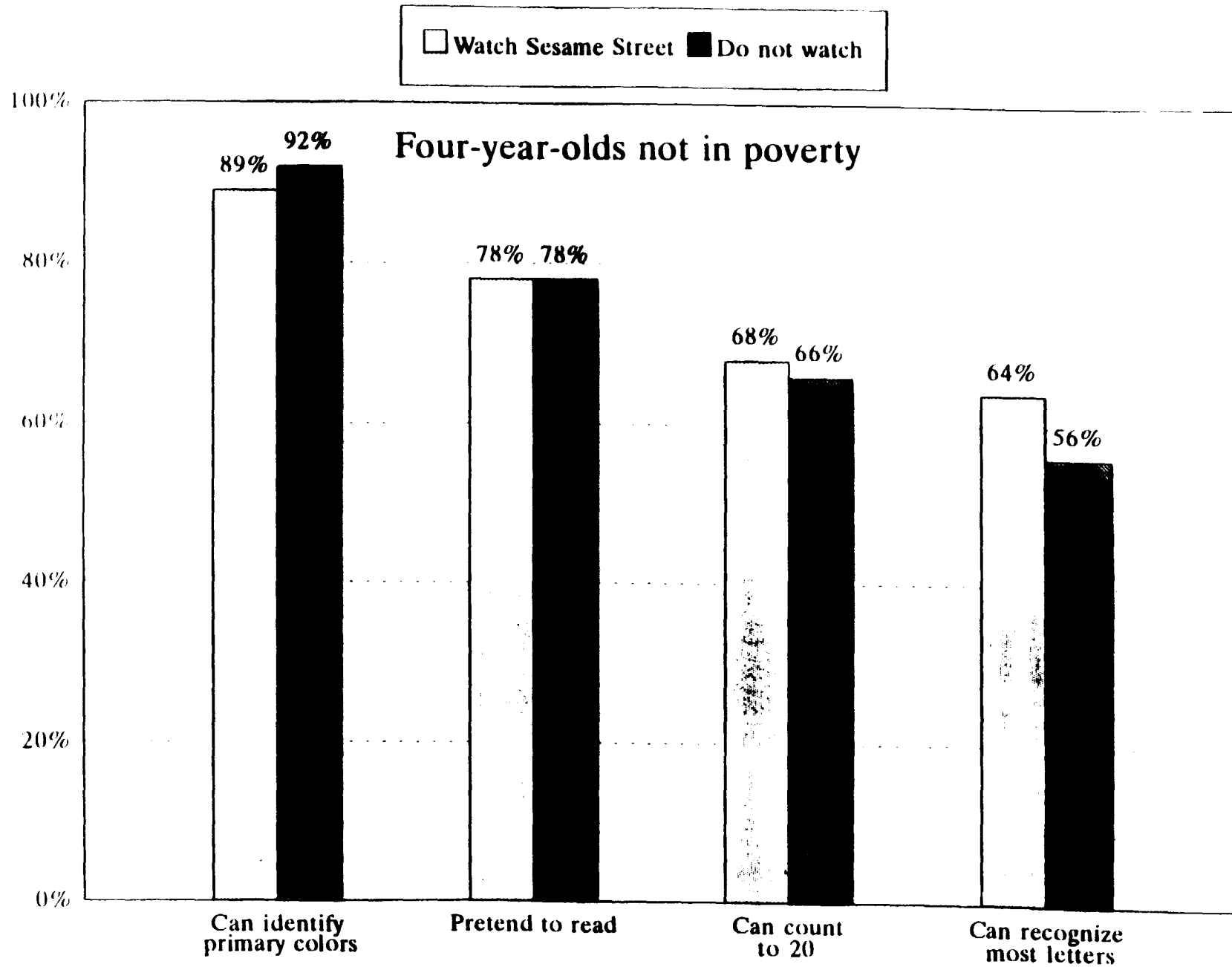


FIGURE 6B

Among four-year-olds from non-poor families, those who watch Sesame Street (or Reading Rainbow) are more likely to recognize letters, but differ little from non-viewers with respect to other signs of emerging literacy and numeracy.



percent of the threes could count to 20, whereas 83 percent could count to 10, so the cutoff for counting was reduced to 10. Only 22 percent of the threes were said to be able to write their own names, so this task was dropped from the set of tasks used for this age group. The other tasks (identifying primary colors, telling connected stories when pretending to read, and writing and drawing rather than scribbling) remained the same.

Viewing of Sesame Street (or Reading Rainbow) was found to relate modestly but significantly to three-year-olds' accomplishment of four of the five emerging literacy tasks. For example, 80 percent of the three-year-old viewers, as opposed to 70 percent of the non-viewers, could recognize at least some of the letters of the alphabet. And 85 percent of the viewers, versus 76 percent of the non-viewers, could count to 10 or more. (Table 6).

When the three-year-olds were subdivided into those from poverty-level families and those from non-poor families, significant relationships between Sesame Street viewing and performance of the literacy tasks were found among both groups. The relationship was stronger among poor children for three of the tasks (identifying colors, counting to ten, and writing and drawing rather than scribbling). Again, however, for the task of recognizing letters, the relationship between viewing and task accomplishment was stronger among non-poor children. (Table 6).⁷

As with the four-year-olds, three-year-olds from low-income families who watched Sesame Street were less likely to show signs of emerging literacy than non-poor children, whether the latter watched Sesame Street or not. For example, 74 percent of Sesame Street (or Reading Rainbow) viewers from poor families could count to 10, whereas 82 percent of non-poor, non-viewers could do so. Likewise, 69 percent of poor children who watched

⁷ When only those three-year-olds who were actual current viewers of Sesame Street were contrasted with current non-viewers, a similar pattern of developmental findings was observed. Again, however, the relationships were generally weaker than when children who watched Sesame Street or Reading Rainbow were defined as the viewer group. See Table 7.

Sesame Street could recognize some letters, whereas 72 percent of non-poor children who did not watch could do so. (Table 6).

Sesame Street viewing continues to relate to emerging literacy when family background factors are taken into consideration. Observed differences in emerging literacy and numeracy associated with Sesame Street viewing continued to be found when child and family background factors were controlled through regression analysis. The separate signs of emerging literacy were combined into an index by counting the number of accomplishments that each preschool child was reported to have done. The index score was then used as the dependent variable in a linear regression analysis.

Separate indexes were created for four-year-olds and three-year-olds. The index for four-year-olds ranged from zero to six in value, and was comprised of identifying colors, recognizing most letters, counting to twenty or higher, telling connected stories when pretending to read, writing and drawing rather than scribbling, and writing own name. The mean emerging literacy scores were 4.26 for all 2,000 four-year-old preschoolers in the survey sample; 4.54 for the 1,625 four-year-olds from non-poor families; and 3.50 for the 375 children from poverty-level families. (These sample numbers are the unweighted Ns. After weights were applied, poor children constituted nearly 27 percent of all four-year-olds).

Factors entered into the regression equation along with Sesame Street (or Reading Rainbow) viewing were whether the parents read to the child not at all or only once or twice (as opposed to three or more times) in the previous week; whether the child ever attended a center-based preschool program; the child's age, sex, and race and Hispanic origin; parent education and family income levels; whether the mother's primary language was Spanish or another non-English language; whether the child was the oldest or only child in the family and the number of children under the age of nine in the household; the number and type of parents present in the household; and whether the child's mother worked full-time, full-year or part-time or part-year (as opposed to not at all) during the previous 12 months. (Table 8). One regression was run using data from all four-year-old preschoolers combined, then

separate regressions were carried out for four-year-olds from families below the official poverty line and for non-poor four-year-olds.

Sesame Street (or Reading Rainbow) watching was a significant predictor of the child's emerging literacy score in the regression run with the full sample of four-year-olds. (Table 8). It was a marginally significant predictor⁸ of literacy in the regression done on the subset of four-year-olds from poor families, but it was not statistically significant in the regression for children from non-poor families only. After adjustment for the other factors, poor children who watched Sesame Street had index scores 0.4 points higher, on average, than poor children who did not watch the program. The squared partial correlation showed that Sesame Street viewing accounted for about one percent of the variance in emerging literacy scores, a modest increment in the score variation predicted by the combination of demographic and experiential factors.

By way of comparison, having attended a center-based preschool program was associated with an increase in index score of 0.83 points for four-year-olds from poor families, and program attendance accounted for about 5 percent of the variance in emerging literacy scores. Not having been read to by parents in the previous week was associated with a 0.66 point decrement in literacy scores for poor children, and accounted for about 1-and-a-half percent of the variance in scores.⁹

Sesame Street viewing is associated with earlier emergence of literacy among three-year-olds as well as older preschoolers. The index of emerging literacy for three-

⁸ $t = 1.94, p = .054$.

⁹ When regression analyses were run including only those 4-year-olds who were actual current viewers of Sesame Street in the viewer group (i.e., excluding those who were now viewers of Reading Rainbow but not of Sesame Street), the results were very similar with respect to the subset of children from poor families. The relationship between Sesame Street viewing and emerging literacy was weaker, however, in the regression run with the full sample of 4's and in the one run with the subset from non-poor families. In both of these runs, the coefficients for Sesame Street viewing were not statistically significant.

year-olds ranged from zero to five in value, and was comprised of identifying colors, recognizing at least some letters, counting to ten or higher, writing and drawing rather than scribbling, and telling connected stories when pretending to read. The mean emerging literacy scores were 3.47 for all 1,912 three-year-olds in the survey sample; 3.61 for the 1,610 three-year-olds from non-poor families; and 2.97 for the 302 three-year-olds from poverty-level families. (Again, these numbers are the unweighted Ns. After weights were applied, the poor children made up nearly 23 percent of all three-year-olds).

Children's scores on this index were predicted by a regression equation that combined Sesame Street (or Reading Rainbow) viewing and a set of family background and experiential variables similar to those that had been used with four-year-olds. Sesame Street viewing was a statistically significant predictor of emerging literacy in the regression run using the full sample of three-year-olds, and in that done with the subset of children from non-poor families. However, the regression coefficient for Sesame Street viewing was not reliably different from zero in the regression with the smaller subset of three-year-olds from poor families, even though the numerical value of the coefficient appeared larger than that observed with the non-poor children. (Table 9).

In the regression done with the full sample of three-year-olds, Sesame Street viewing was associated with a small positive increment in the index score (0.22 points). Sesame Street viewing accounted for about one half of one percent of the variance in emerging literacy scores. In this age group, attendance at center-based preschool or child care programs also had a relatively modest effect. Program attendance was associated with a 0.17 increment in index score, and accounted for about one half of one percent of the variance in scores.

Parental reading had a more robust effect. Not having been read to at all by parents in the previous week was associated with a decrement of nearly a full point in the index score, while having been read to only once or twice was linked to a decline of nearly six-

tenths of a point. Each of the parental reading variables accounted for about 2.75 percent of the variance in emerging literacy scores among all three-year-olds.

To summarize, Sesame Street viewing was associated with modest but reliable enhancements in emerging literacy in both four-year-old and three-year-old preschoolers. The score increases were observed even after a variety of related factors, including parental reading, preschool attendance, and parent education and income levels, were statistically controlled. The effect of Sesame Street viewing on emerging literacy was more pronounced among four-year-olds from poor families than among those from non-poor families. Although there seemed to be a similar difference in effect among three-year-olds, the coefficient for Sesame Street viewing among three-year-olds from poor families was not large enough to be deemed statistically reliable, given the relatively small number of children in the low-income subgroup.

Children who watched Sesame Street show greater ability to read and fewer reading problems in first and second grade. First and second graders who were reported to have watched Sesame Street before they began kindergarten were significantly more likely to be able to read storybooks on their own, and significantly less likely to be receiving special help in school for reading problems. Among students who had watched the program, 91 percent could read storybooks on their own, whereas among non-watchers, 84 percent could read. Conversely, 19 percent of the watchers, as opposed to 26 percent of the non-watchers, were getting special help in school for reading problems. (Figure 7).

The observed differences in pupil reading facility associated with Sesame Street viewing remained significant when family background differences between viewers and non-viewers were controlled by means of multiple logistic regression. Factors entered into the regression equation along with Sesame Street viewing were the child's age, sex, and race and Hispanic origin; parent education and family income levels; whether the mother's primary language was Spanish or another non-English language; whether the child was the oldest or only child in the family and the number of children under the age of nine in the household;